

What is claimed is:

Claim 1. A method for forming an insulating film in a semiconductor device characterized in that a step of forming an insulating film so as to have a thickness in the range of 0.3 to 2 nm and a step of removing impurities from the insulating film are repeated a plurality of times, to form an insulating film having a prescribed thickness.

Claim 2. The method for forming an insulating film in a semiconductor device as claimed 1, therein the step of removing impurities is performed in a reducing gas atmosphere or an oxidizing gas atmosphere.

Claim 3. The method for forming an insulating film in a semiconductor device as claimed 1, therein the step of removing impurities is performed in a reducing gas atmosphere combined with an oxidizing gas atmosphere.

Claim 4. The method for forming an insulating film in a semiconductor device as claimed 2 or 3, therein the reducing atmosphere in the step of removing impurities is formed of any of single gases of an ammonia gas, a hydrogen gas and an inert gas, a mixed gas of these gases or plasma nitrogen, or formed in a vacuum.

Claim 5. The method for forming an insulating film in a semiconductor device as claimed 2 or 3, therein the oxidizing gas atmosphere in the step of removing impurities is formed of any of single gases of an oxygen gas, a nitrogen monoxide gas, a nitrous oxide gas and an ozone gas, a mixed gas of these gases or plasma oxygen.